

REMARKS

This is in response to the Office Action mailed March 16, 2010. A petition for one month extension of time (with fee) is filed concurrently. In addition, the additional claim fee is paid concurrently.

Claims 19-41 were pending in the application at the time the Office Action was mailed. Claims 19-41 were rejected. No claims were allowed.

By this Response, claims 19, 24, 29, 31 and 38-40 have been amended. Claims 42 – 46 have been added. No claims have been cancelled. Claim 42 contains language deleted from Claim 29; Claims 43-46 contain language from claim 3 (a dependent claim) of the PCT application although the claim 43, the broadest of these four claims, is also broader than PCT claim 3 but narrower than PCT claim 1 from which PCT claim 3 depends.

Thus claims 19 – 46 are now pending.

The amendments presented herein have been made solely to expedite prosecution of the instant application to allowance and should not be construed as an indication of Applicants' agreement with or acquiescence to the Examiner's position. Accordingly, Applicants expressly maintain the right to pursue broader subject matter through subsequent amendments, continuation or divisional applications, reexamination or reissue proceedings, and all other available means. The amendments and rejections are addressed below in more detail.

Applicants' again thank the Examiner for the thorough search and consideration of this application.

Claim Objections

All claims for which the Office Action noted an objection have been amended for clarity with no change in scope. Accordingly, withdrawal of the objection is respectfully requested.

Claim Rejections - 35 U.S.C. § 112

In the Office Action, claims 29 and 38 were rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Specifically, the Office Action states that “[t]he ‘preferably’ makes the claim unclear.” Claims 29 and 38 have been amended herein for clarity.

Accordingly, withdrawal of this rejection is respectfully requested.

Claim Rejections - 35 U.S.C. § 103

In the Office Action, claims 19-23, 25-31, and 33-41 were rejected under 35 U.S.C. §103(a) as being unpatentable over US Patent No. 5,512,618 to Duerr (hereinafter “Duerr”) in view of US Patent No. 4,727,091 to Hawrylko (hereinafter “Hawrylko”). This rejection is respectfully traversed based on the following explanation.

Duerr discloses a starch based adhesive composition for use in the manufacturing of corrugated paperboard. The adhesive composition contains an agent for enhancing the suspension of the starch.

According to the Duerr disclosure, suspension of the starch may be enhanced by adding to the adhesive composition a suspension-enhancing additive. Use is made of a polymer of acrylic acid or a copolymer of acrylic acid and an aromatic monomer substituted with an acrylate compound as a suspension enhancing additive (Col. 2, Lines 58-67). The Duerr document does not disclose the use of an additive which is a cross-linked homo- or copolymer of acrylic acid. The Duerr document does not disclose the use of an additive with a pseudo plastic behavior.

The present invention does claim enhancing the suspension of the starch and thus has a different purpose from the disclosure of the Duerr document. The present invention seeks to limit penetration of the starch based adhesive into the paper/card board upon application of the adhesive.

The Hawrylko document does not relate to corrugated board. The Hawrylko document relates to a process for producing spherical PVC particles, whereby: the process creates less amounts of fines; the PVC resin particles have adequate porosity; polymer buildup on the internal surfaces of the reactor is reduced. The process uses an aqueous suspension which contains at least one dispersant capable of thickening water. A suitable thickener is a cross-linked polyacrylic acid polymer, use of non-cross-linked polymer will produce non-spherical particles (Col. 3, Lines 34-41).

The skilled person would never combine the teaching of Hawrylko with that of Duerr and would have no basis to do so -- whereas the Duerr document relates to a starch based adhesive for use in the manufacturing of corrugated board, the Hawrylko document relates to the production of PVC -- both fields of the technology are far removed from each other.

The teaching that can be taken from the Hawrylko document is that a cross-linked polyacrylic acid is capable of thickening an aqueous PVC dispersion. There is no teaching in the Hawrylko document that the cross-linked polyacrylic acid would show pseudo-plastic behavior. There is no teaching in the Hawrylko document that the presence of a cross-linked polyacrylic acid in an adhesive composition has the effect that:

- the adhesive composition shows a reduced viscosity when subjected to shear or pressure. The result is that a thinner layer of adhesive is applied.
- initial viscosity is restored virtually immediately upon removal of the shear forces, which prevents the adhesive from flowing away and ensures good adhesion. As a consequence, penetration of the adhesive into the card/paper board is minimized.

The present invention does not seek to solve the problem of improving the dispersion of the adhesive in the adhesive composition. The present invention rather seeks to control the viscosity of the adhesive composition by adding the additive in such a way that viscosity reversibly varies between a lower and a higher value depending on the presence/absence of shear forces. Thus the present invention addresses and solves a different problem. For example, the present invention solves a problem of reducing risk of deformation of corrugations. See, page 1,

lines 3-14 and page 2, lines 6-16. In addition, there is no basis to suggest combining the teachings of these two documents.

Based on the foregoing, the rejection of claims 19-23, 25-31 and 33-41 (§ 7 of the Office Action) should be withdrawn.

In the Office Action, claim 24 was rejected under 35 U.S.C. §103(a) as being unpatentable over US Patent No. 5,512,618 to Duerr in view of US Publication No. 2002/0033116 to Hawrylko as applied to claims 19-23, 25-31, and 33-41, and further in view of US Patent No. 4,404,246 to Charbonneau et al. (hereinafter “Charbonneau et al.”).

The Charbonneau et al. document discloses a pressure sensitive adhesive tape where the adhesive is applied to the carrier web of the tape. The adhesive which is used is an acrylate copolymer. To produce the adhesive, a mixture of the acrylic ester of a nontertiary alcohol and at least one copolymerizable monoethylenic monomer is partially polymerized in the presence of a photoinitiator, then the partially polymerized polymer is applied as a coating to the backing of the adhesive tape. The adhesive shows sufficient tackiness to provide immediate adhesion to most clean surfaces, thereafter, polymerization is completed by exposing the adhesive coating to UV in an inert environment. The tape is applied to a surface to which it is to be mounted, using the face with the adhesive. After the tape has been applied to the surface, it is heated to achieve cross-linking of the polymer.

In the Charbonneau et al., disclosure, the copolymer of a nontertiary alcohol and at least one copolymerizable monoethylenic monomer is used as the adhesive. In the present claims, a cross-linked copolymer of an acrylic acid according to formula I and the acrylate of formula II is not used as an adhesive, but it is used as an additive which is incorporated into an adhesive, in particular a starch based adhesive.

According to the Charbonneau et al. document, the copolymer is cross-linked only after it has been applied to the adhesive tape. In the present invention, the additive is already copolymerized when it is incorporated into the adhesive composition.

Therefore, the combination of the Charbonneau et al. and Duerr documents, without taking into account the Applicants' disclosure, would lead to an adhesive composition for the manufacturing of cardboard, whereby the adhesive is a polymer or copolymer of acrylic acid which is not cross-linked as long as it is contained in the adhesive composition. The Hawrylko document does not make a technological contribution which renders the claimed invention obvious and nowhere discloses that the non-cross-linked copolymer would have pseudo-plastic properties. Therefore, the combination of the Charbonneau and Duerr disclosures would not lead to a starch based adhesive composition with pseudo-plastic properties. Applicants assert that the adhesive composition of the present invention contains an adhesive and an additive which is a cross-linked homopolymer or copolymer.

As an aside, while "pseudo-plastic properties" does not appear in any of the pending claims (although "pseudo plastic material" does appear in dependent claim 27), the application indicates that "The claimed additives show pseudo plastic properties and are capable of imparting this pseudo plastic behavior to the adhesive composition containing them...." (page 3, lines 20-22). Accordingly, Applicants submit that if the claimed additive shows such properties, it is not required that the claims specify such properties.

Based on the foregoing, Applicants' submit that the combination of the Duerr, Hawrylko, and Charbonneau et al. documents does not render the present invention obvious within the meaning of 35 U.S.C. 103. In addition, there is no basis or suggestion for modifying and/or combining these three documents.

Accordingly, the rejection of claim 24 (§ 8 of the Office Action) should be withdrawn.

Finally, the rejection of claim 32 based on the combination of the Duerr, Hawrylko and Columbus et al documents is respectfully traversed, again, because there is no basis or suggestion for modifying or combining these three documents. The mere fact that the Columbus et al document may contain a clarification agent is submitted to be irrelevant because the Duerr and Hawrylko documents appear to be silent as to clarification agents. If the first two documents are silent as to clarification agents, that suggests, in addition to Applicants' arguments about

combining the teaching of these documents in the first instance, that no clarification agent was deemed necessary. If no clarification agent was deemed necessary by Duerr and Hawrylko, and if the combination of these two documents render the broader claims “obvious” (which is disputed) it is inconsistent with the teaching of these two documents to suggest that a clarification agent is necessary, beneficial and/or desirable and, therefore, inconsistent to piece together a rejection of a dependent claim which does refer to an “optical clarification agent” by adding yet another prior art document.

Conclusion

Applicants respectfully submit that no basis has been demonstrated for combining the teachings of the documents, and that even if there was such a basis, the combination of documents as proposed in the Office Action does not meet the language of the claims nor render the claims obvious. It is submitted that a *prima facie* basis for an obviousness rejection has not been demonstrated in the Office Action.

It is submitted that this application is now in condition for allowance and such action is respectfully requested.

If any issues remain outstanding, Applicants invite the Examiner to call the undersigned if it is believed that a telephone interview would expedite the prosecution of the application to an allowance.

Respectfully submitted,

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